

The taste of *Drosophila suzukii*: phylogeny and evolution of its gustatory receptors

Cristina Crava, Sukanya Ramasamy, Lino Ometto, Gianfranco Anfora, Omar Rota-Stabelli

DASB, Fondazione Mach, San Michele all'Adige

Insects rely on taste to evaluate food, hosts, and to select mates and hospitable zones to deposit eggs. They sense tastants and non-volatile pheromones through gustatory sensilla, the hair-like structures distributed on multiple parts of their body, including the proboscis, legs and wings. These sensilla house gustatory neurons (GRNs) that express different types of gustatory receptors (GRs). Here we compare the GR repertoire of an emerging *Drosophila* pest, *Drosophila suzukii*, which feeds and oviposits on fresh, soft fruits like berries, cherries and grapevine, to its two closely related non-pest species, *D. biarmipes* and *D. subpulchrella*, and to other more distant *Drosophila* species that instead feed, only on rotten fruits. Our results show evidence of specific gene gains in *D. suzukii*. Differences in GR repertoire may be a part of the evolutionary changes that has contributed to *D. suzukii*'s innovative behavior.